PRIN*tips*

If You Want it Read, Make it Legible

It has been more than 20 years since Paul Brainerd, the founder of Aldus Corporation, coined the term *desktop publishing* to distinguish his software program PageMaker from professional typesetting. Over that time period, typesetting has migrated from the world of commercial printing and publishing to homes and offices. The quality of type produced by today's inexpensive and readily-available software programs is very different from the primitive appearance of type generated by early desktop publishing programs.

One result of typesetting's migration to the desktop is the need for a wide variety of people – from art directors to graphic designers, as well as marketing professionals and administrative executives – to learn something about typography. A simple definition of typography is the layout of text on a printed page, but in a broader sense, it is a form of visual communication that effectively increases reader understanding.

In traditional typography, good text composition (page layout) – the arrangement of fonts on the page, the alignment of text, and the manipulation of text, white space and graphics – improves visual appearance so the reader doesn't notice the composition. Instead, the reader's entire attention is focused on the message the text intends to convey.

Readability and legibility

Typography has a great effect on both readability and legibility. Legibility is a measure of how easy it is to distinguish one letter from another, while readability is the ease with which text is read and understood. The choice of typeface affects legibility, and the way the typeface is used affects readability. Truly effective typography balances readability, legibility and style to create interesting text composition that promotes comprehension and retention.

Research suggests that font selection, font size, letter spacing, word spacing, line spacing and line length are all important factors in determining readability and legibility.

Font selection

Not all fonts are designed with legibility as the primary goal. A type designer may be exercising creativity, making a statement, or have some other purpose in mind besides legibility. Script fonts are an example: these are designed to emulate calligraphy or handwriting, and legibility is sacrificed in small point sizes and if used in all capital letters.

The characteristics of a typeface that make it legible are its degree of openness (large, open counters, generous lower case x-heights); character shapes that are easy to recognize; and restraint (not overly light or bold, subtle changes within character strokes, and serifs that do not call attention to themselves).

Font size

Because digital type can be easily set in any point size, there is relatively little consistency in the size of type in various publications. Adult books are often set in 10 or 12 point type; newspapers use 8 point type; large print publications vary from 14 to 18 point. Generally speaking, the size of the font is influenced by the line length – the shorter the line length, the smaller the point size.

Letter spacing

As its name implies, letter spacing is the amount of spacing between a group of letters. During design, each character in a font is assigned a fixed amount of space. In a monospaced font, each character has an identical amount of space, while in a proportional font, some letters (such as *i, l, t, f*) are assigned less space and other letters (such as *m, w*) are assigned more space.

Tight letter spacing, particularly in small point sizes, diminishes legibility. Adding white space around a letter allows it to emerge and be recognized more quickly. However, if too much white space is added, the letter can become isolated rather than easily identified.

Condensed fonts are designed with less proportional space per character than the regular version, while extended fonts allocate more proportional space to each character. As a result, the condensed version of a font requires less horizontal space than the regular version, and the extended style requires more space.

Letter spacing can be adjusted in one of three ways. The first is by use of *ligatures* which are two or more characters joined with a connecting stroke to form a single glyph. Ligatures were widely used in Europe before the advent of sans serif type but are almost entirely absent in desktop publishing programs.

Another way to adjust letter spacing is with *tracking* which is the process of applying an equal amount of space between all letters. (This is also a commonly-used way to fit more characters in a line as a way to avoid *widows*.) Tracking is a term used in digital typography.

The final way to adjust letter spacing is to apply *kerning* by adjusting the space between letters depending on the adjacent letter. Kerning improves the overall appearance of text by removing unneeded white space.

Word spacing

Word spacing is often determined by typographical *alignment*, the setting of text flow relative to the page or column margins. The four types of alignment are *flush left, flush right, justified* and *centered.*

Text aligned the left margin is also known as *ragged right*, while text aligned the right margin is known as *ragged left.* Centered text is not aligned to any margin and has an even amount of white space at both the right and left side of each line. Justified text is aligned along both the left and right margins by adjusting word (and occasionally, letter) spacing, and is also known as *full justification.*

Justification can affect readability and legibility by either taking out or adding in too much spacing between words. In the first case, the words may almost run together; in the second, there may be rivers of white space that appear in the block of text. It is for this reason that flush left is more commonly used than justification.

Line spacing

Also known as *leading,* line spacing by itself has no bearing on readability and legibility; rather, it is the combination of leading and point size that creates the affect. As with word spacing, too little space between lines makes the individual words hard to distinguish, and too much space between lines makes it difficult to move smoothly from one line to the next.

Line length

The optimum line length depends on the font and point size. A good rule of thumb is that a line should be two to three alphabets in length, or approximately 52-78 characters (including spaces) in the point size of the font being used. A simple formula is to multiple the point size by 2, so the line length for 12-point type would be 24 points. Use this as a first try, then adjust as necessary. These suggestions normally results in multiple narrower columns as opposed to a single wide column on a page.

Overall effect

A good way to test the overall effect of typography is to use *greeking,* a paragraph of nonsense words to which you apply the specific typographic effects you are considering. A paragraph commonly used for greeking is called *lorem ipsum* after the first two words. Although the text looks like Latin, it is nonsense:

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a vocabulary of the graphic arts

Column: blocks of text arranged on a page and separated by margins. Columns facilitate readability of large blocks of text and improve the appearance of the page.

Computer font: a set of glyphs, characters or symbols in a data file.

Dingbat: a typographic ornament or symbol. Also known as *printer's ornament, printer's flower, floret* or *fleuron.*

Glyph: the individual characters in a typeface, including the letters of the alphabet, numbers and punctuation marks. May also include symbols, such as dingbats.

Greeking: nonsense text used to demonstrate a typeface's weight and style in a block of text prior to actual typesetting. The most common text is *lorem ipsum* or the beginning of Cicero's *In Catilinam.*

Letter spacing: in traditional typesetting, the adjustment of spaces between letters to improve legibility or readability. In computer-based typesetting, also known as *tracking.*

Ligature: two or more characters joined with a connecting stroke to form a single glyph. Used to improve the appearance

of the specific set of type characters or to clarify pronunciation. Ligatures are rare in modern-day English language text.

Pangram: a sentence that uses all the letters of the alphabet. *The quick brown fox jumps over the lazy dog* is a familiar English pangram.

Recto-verso: two-sided printing. In book publishing, the recto is the right hand page; verso is the left.

Sans serif: A typeface without serifs. Sans serif typefaces first became popular in the early nineteenth century.

Serif: A short line or finishing stroke that crosses or projects from stems or strokes in a character. Serifs have many shapes, including hairline, bracketed, wedge, and slab.

Tracking: in computer-based typesetting, the adjustment of space between characters, either uniformly or optically, to improve legibility or readability or create special effects. Adding or subtracting an equal amount of space between all characters in a selected portion of text is called *positive* or *negative* tracking. Also known as *letter spacing* in traditional typography.

THE idea CORNER

In traditional typography, the terms *typeface* and *font* are not interchangeable. *Typeface* refers to a complete set of characters, including letters of the alphabet, numbers and punctuation marks, that have a distinct and visually harmonious design. A *font* is a typeface in a single size and style.

The distinction dates from the way type was originally produced. Letter punches (*i.e.,* the three-dimensional molds from which matrices were made in hard metal) had to be cut for every point size and for every style. For example, 10-point type of a typeface was a separate font from 12-point in the same typeface, and the italic form of a typeface was a separate font from its roman form. The cutting of a different font for each size and style of a typeface allowed the type designer to alter the typeface as needed to preserve its aesthetic elements.

As the range of typeface designs increased, fonts were gathered into *font families* that included all the available weights (such as light and bold) and styles (such as italic, roman and condensed) but used the same design. Depending on its design, a font family may contain only a few fonts or may consist of dozens.

Digital type does not make the distinction between typeface and font because the variants (size, weight and style) are created by *scaling* rather than by drawing a new font. Digital fonts store the image of each character as either a bitmap or vector (*i.e.* outline). Two common digital font formats are PostScript and TrueType.

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There is a holdover from the days of typewriters that negatively affects the appearance of a block of type – the practice of putting two spaces after a period. This practice is based on the fact that typewriter fonts are *monospaced,* meaning that every letter takes up the same amount of space.

In contrast, digital type is proportionally spaced, meaning that width of each character and its surrounding space are in proportion to each other. In a monospaced font, the letter *m* and *i* take up the same amount of space; in a proportionally spaced font, the *i* takes up less space than the *m*.

Here is an example:

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    Courier (monospaced font):
The quick brown fox jumps over the lazy dog.
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Times Roman (proportional font):
The quick brown fox jumps over the lazy dog.

In a monospaced font, two spaces were needed between sentences to achieve a noticeable separation. In a proportionally spaced font, this is not necessary and in fact leads to too much space between sentences.

Q. How can I avoid creating widows and orphans during typesetting?

A. First let's define these terms. Traditionally, a *widow* refers to a final line of text in a paragraph that appears at the top of the next column or page. It may also mean a single word or two very short words that appear as the final line of a paragraph.

An *orphan* is the first line of a paragraph that appears at the bottom of a column or page, with the continuation of the paragraph on the next column or page. Widows and orphans are considered undesirable as they disturb the aesthetic appearance of the block of type on the page.

Orphans are most easily eliminated by inserting a blank line or forcing a page break to reunite the orphan with the rest of the paragraph. Widows can be eliminated by any of these techniques:

- forcing an early page break
- adjusting the space between words
- adjusting page margins
- editing the paragraph

Widows can also be eliminated by adjusting letterspacing, though this runs the risk of distorting the characters or making the text less legible.

questions and answers